WASHINGTON
HIGHER
EDUCATION
COORDINATING BOARD

October 2005

State and Regional Needs Assessment

I. Introduction

The Higher Education Coordinating Board, in conjunction with other state agencies and institutions, is charged with stewardship of state higher education resources. A critical aspect of this role is planning and coordination of academic programs, teaching sites, and centers. Over the past several years, the state has faced increasing pressure for additional student enrollments at a time of diminishing fiscal resources. In this environment, it is increasingly important that future growth be planned and coordinated such that it will attend to the state economic development needs and the demands and preferences of students as well as the fiscal constraints now facing the state. The *2004 Strategic Master Plan for Higher Education* calls for data-driven decisions related to the allocation of student enrollments (master plan implementation strategy 2) and assessment of regional higher education needs to meet student, employer, and community demand. The needs assessment, in conjunction with analysis of institutional role and mission, will drive academic program and facility planning and approval (master plan implementation strategy 6).

Based on current college participation rates, the Office of Financial Management estimates an additional 18,000 students will enter the public higher education system by 2010.[1] The estimated growth in enrollment derives primarily from a projected increase in the number of high school graduates over the next several years. However, an estimate based on historic participation rates may significantly understate the demand for access to postsecondary education. In many parts of the state, we expect to see increasing participation in college due to increasing returns to additional years of schooling through higher lifetime earnings, higher education levels of parents, improvements in high school preparation and advising, and the success of a variety of programs such as GEAR UP designed to encourage students to pursue college enrollment. As a result, HECB enrollment estimates have been consistently higher than the OFM estimates. In the strategic master plan, the HECB departed from enrollment estimates based on participation rates in favor of an outcomes-based approach that estimates the growth in the number of degrees

[1] Washington State Office of Financial Management. Public Higher Education Enrollment Projections – Revised Table 1. November 2004. Estimate is based on 2004-2005 participation rates and enrollments.

produced then considers the enrollments required to meet that goal. Using this approach, the HECB estimates enrollment growth of 45,000 additional FTE students by 2010.[2]

While overall estimates of the size of the system provide a broad overview of the needs in the state, they do not take into account areas of study, geography, or employer needs. With the passage of HB 3103 in 2004, the legislature has asked the HECB to assess student, employer, and community demand for postsecondary education statewide and regionally. The report includes an assessment, conducted jointly with the State Board for Community and Technical Colleges and the Workforce Training and Education Coordinating Board, of the number of forecasted net job openings at each level of higher education and training and the number of credentials needed to match the forecast of net job openings. The needs assessment will play an important part in moving the higher education system in a direction that will help us meet the challenges ahead. In collaboration with WTECB, SBCTC, the public and private postsecondary institutions in Washington, and other key agencies, the HECB will assess the need for additional degrees and programs at all levels to meet the needs of employers, students, and communities. The needs assessment will become an essential part of the planning and approval process for the public baccalaureate degree granting institutions as we grow and adapt our system of higher education.

[2] The number of new FTEs reported in this section includes public two-year and four-year enrollments based on a comparison to 2003-2004 average annual enrollments.

II. Legislative Direction and Related Policy Issues

The HECB is required to develop a comprehensive and ongoing needs assessment process to analyze the demand for additional degrees and programs, additional off-campus centers and sites for degree programs, and consolidation or elimination of programs by the four-year institutions [RCW 28B.76.230 (1)].

As part of the needs assessment process, the HECB will examine:

(1) Projections of student, employer, and community demand for higher education and academic degrees, including liberal arts degrees, on a regional and statewide basis.

(2) Current and projected degree programs and enrollment at public and private institutions of higher education, by location and mode of service delivery.

(3) Data from the Workforce Training and Education Coordinating Board and the State Board for Community and Technical Colleges on the supply and demand for workforce education and certificates and associate degrees.

The HECB is also required to determine whether certain major lines of study or types of degrees, including applied degrees or research-oriented degrees, shall be assigned uniquely to some institutions or institutional sectors in order to create centers of excellence that focus resources and expertise [RCW 28B.76.230 (4)]. This determination will rely on the needs assessment, the institutional program review process, and the fit between academic programs and institutional role and mission. Currently, a number of major lines of study are uniquely assigned to specific institutions. These are discussed later in this document.

III. Description of Work by the HECB and Other Agencies

This assessment draws on a variety of reports and data sources currently produced by different agencies within the state. Coordination, research, and planning for postsecondary education occur at the campus level for each institution and within four primary agencies: the Higher Education Coordinating Board, the State Board for Community and Technical Colleges, the Workforce Training and Education Coordinating Board, and the Office of Financial Management. In addition, key projections and support also come from the Department of Employment Security and the Department of Community, Trade and Economic Development. These agencies provide data and reports on a regular basis and periodically produce special reports on a given topic of interest (see appendix E for a listing of selected reports and data sets). For example, the State Board for Community and Technical Colleges recently released a study of the need for additional capacity at baccalaureate institutions within the state to accommodate additional transfer students.

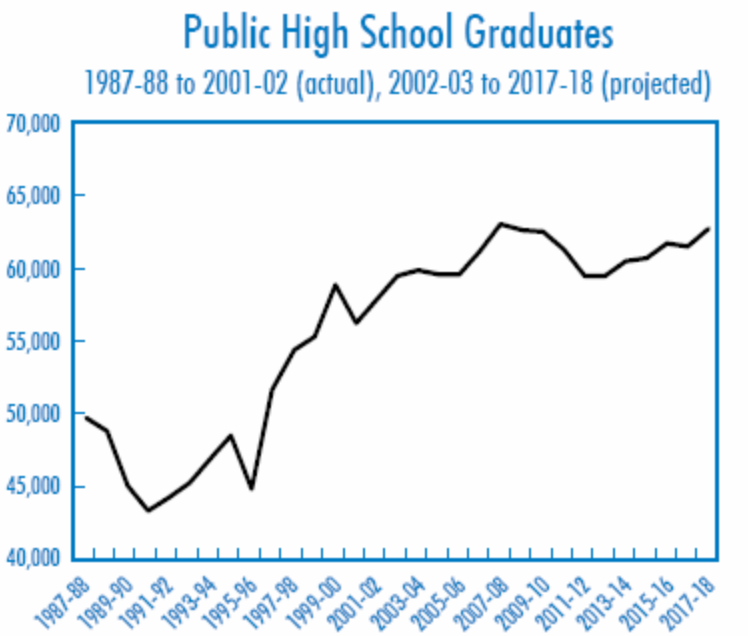
While much of the information presented in the statewide and regional needs assessment is available elsewhere, this report represents the first integrated analysis of statewide and regional supply and demand for postsecondary education in Washington. The assessment provides the HECB and other state policymakers with a critical tool to understand the current size and shape of higher education in the state, anticipated and current gaps in the supply of education programs and prepared workers, and recommendations for programmatic and facility growth to meet anticipated demand. Institutions will use the needs assessment in their academic program planning and facilities planning processes.

The assessment is an ongoing process and involves a workgroup made up of key stakeholders in higher education, including staff from the State Board for Community and Technical Colleges, the Workforce Training and Education Coordinating Board, the Office of Financial Management, the Employment Security Department, the Department of Community, Trade and Economic Development, representatives from the four-year public and private institutions, and HECB staff. The group was assembled to guide the development of an appropriate methodology, including identification of data sources and selection of analytical techniques, for the regional and state assessment of higher education needs and to provide feedback on the model as it is developed and implemented. Following the release of the interim report, the workgroup will continue to evaluate the assessment model and make recommendations for improvements in future editions of the report. The report will be produced on a biennial schedule, with report updates released in July of even-numbered years.

IV. Background: Trends and Outcomes in Higher Education

The need for additional capacity in higher education is not unique to Washington. National Center for Education Statistics (NCES) projections indicate that "changes in age-specific enrollment rates and college-age populations will affect enrollment levels between 2000 and 2013. The most important factor is the expected increase in the traditional college-age population of 18- to 24-year-olds" (NCES 2004-013, p. 8). The report projects that the rate of growth will be substantially higher for traditional age college students (22 percent) than for older students (two percent for students over the age of 35). The growth rate for full-time students (22 percent) is estimated to be almost twice that of part-time students (13 percent). Washington can expect an increase in the number of high school graduates of 8.3 percent between 2001-2002 and 2017-2018, with enrollment peaks in 2007-2008 and 2017-2018.[3] NCES estimates an increase of 12.5 percent in the number of graduates in Washington between 2000-01 and 2007-08, then a drop in the number of graduates of 5.7 percent between 2008-09 and 2012-13, for a net growth over the period of six percent.[4]

Figure 1
Washington Public High School Graduates



Source: Western Interstate Commission for Higher Education (WICHE), 2003.

[3] (2003) Knocking at the College Door – Washington Profile, Western Interstate Commission for Higher Education.
[4] (2004) Projections of Education Statistics, National Center for Education Statistics 2004-013, U.S. Department of Education.

Access to postsecondary educational opportunities for this new wave of graduates is increasingly important. Washington is unique in that we are a leader in innovation and technology-based industries;[5] however, that leadership position has relied heavily on drawing highly trained workers from outside of Washington, especially in computer science, engineering, and health care occupations. As a result, we rank 10th in the nation in the portion of the population over age 25 who hold a bachelor's degree[6] despite the fact that we rank 33rd among the states in the production of degrees at that level.[7] Put simply, companies are forced to look outside the state to attract talented workers with the appropriate training to meet their needs, while many Washington residents are being left behind.

Postsecondary education benefits students directly on an individual basis as well as benefiting employers and communities. Additional years of education yield a clear and well-documented benefit to students. As the HECB outlined in the *2005 Strategic Master Plan for Higher Education*, on average, students who complete a postsecondary degree earn more and are less likely to be unemployed than a high school graduate who does not continue his or her education.

Communities also benefit from higher education through a better educated citizenry. Higher levels of education are associated with greater participation in civic life, including voting and community volunteerism. In addition, higher education institutions bring important economic benefits to their communities through direct employment, spending by students and employees, and the development of additional resources through grants and contracts that bring money into the local economy from state, federal, and private sources.

Employers consistently demonstrate a preference for better educated workers and, in many cases, the education level of the workforce in a given region and proximity to a higher education institution are critical factors a firm considers when deciding where to start or expand operations. However, despite increases in the number of students completing postsecondary training, employers continue to report difficulty hiring trained workers at all levels of education. The Washington State Workforce Training and Education Coordinating Board conducts a survey of employers every two years. With results that are generally consistent with prior years, the 2004 survey finds that "employers believed skill shortages were hurting their business by limiting output or sales, lowering productivity, and reducing product quality."[8]

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[5] (July 2005) Innovation and R&D Spillovers by Industry: The Importance of Geographic Proximity and Innovation, Giovanni Peri, Presentation at the University of Washington Economic Policy Research Center conference on Education and Productivity [http://depts.washington.edu/eprc/education/].

[6] (December 2004) Higher Education Trends and Highlights, Washington State Office of Financial Management.

[7] (December 2004) Interim Strategic Master Plan, Higher Education Coordinating Board. Ranking is based on the number of baccalaureate degrees awarded per 1,000 residents age 20-29 in the year 2000.

[8] (2004) Washington State Employers' Workforce Training Needs and Practices, Workforce Training and Education Coordinating Board.

For the assessment to provide effective guidance in the development of new academic programs and teaching sites, it is critical to build some understanding around the relationship between academic field and occupation. Although graduates from the same academic field tend to gravitate toward one or two occupational areas, in most academic fields a substantial portion of graduates are distributed across a broad range of occupations. For this reason, it would be unwise to make 1:1 assessments of supply and demand based on field of study and occupation in most disciplines. Therefore, this report will, instead, focus on aggregate measures of supply and demand, with a more detailed examination of selected high-demand occupations where clear training pathways can be readily identified.

V. Scope of Analysis

This report will include analysis of student enrollment behavior, employment outlook and training needs, and community needs in an effort to understand the supply and demand for postsecondary education in Washington state. Specifically, the assessment will respond to the criteria laid out in legislation as follows:

(1) Projections of student, employer, and community demand for education and degrees, including liberal arts degrees, on a regional and statewide basis.

- How many state funded FTEs and how many opportunities for enrollment in private for-profit and not-for-profit colleges and universities must be available in the higher education system in order to respond to student demand?

  Student demand is defined as the need for degrees and programs expressed by students. The student demand estimates are based on historic participation rates and population projections using the HECB simulation model. In addition, the HECB projection of degrees awarded will be used to estimate an alternative projection of student demand. Finally, several campuses have provided information to identify programs and major lines of study that experience especially high demand from qualified students for possible inclusion as high-demand programs.

- How many trained workers (by level and field of study) are required to meet employer demand for prepared workers?

  Employer demand is defined as the annual number of net job openings by occupation. The analysis relies on the Department of Employment Security's long-term occupational projections. Training levels are assigned based on two measures: (1) the collapsed Bureau of Labor Statistics training codes for occupations used in previous reports by WTECB and SBCTC will act as a proxy measure of the minimum qualification to enter an occupation and (2) training requirements of the actual workforce based on HECB analysis of the training level of workers by occupation (based on 2000 U.S. Census data). Using these measures, HECB staff project the aggregate number and level (e.g., bachelor's, master's, doctorate) of degrees required to meet employer demand.

- What are the community needs for higher education and how can the state be responsive to these needs?

  Community demand is the demand for institutions, degrees, or programs expressed by communities. Assessment of community demand will allow for consideration of elements not included in the above projections, such as economic development plans in a given region or community, arrival or departure of major industry or employer, new

technology, or other developments that may not be readily picked up in the projections described above.

(2) Current and projected degree programs and enrollment at public and private institutions of higher education, by location and mode of service delivery.

- What is current and planned capacity in Washington postsecondary institutions?

  Education supply is defined as the capacity for postsecondary enrollment. Using available data, a finer level of analysis is possible for the public institutions than for the privates. Three measures of supply will be used for different aspects of the analysis. For the system as a whole, an aggregate estimate of capacity will be based on current enrollments in public and private institutions. Second, the HECB will analyze data on planned capacity at public and private four-year institutions. Finally, program level supply will be measured by analyzing the number of degrees produced in major fields of study.

- How many degrees are produced annually in Washington (by field of study, region, and educational sector)?

  Workforce supply is defined as the number of prepared workers available to take positions in the workforce. The workforce supply is based on the number of graduates with degrees as reported in the Integrated Postsecondary Education Data System (IPEDS), less students who are enrolled full-time in graduate school or are not in the labor force (estimate based on National Center for Education Statistics "Baccalaureate and Beyond" findings).

(3) Data from the Workforce Training and Education Coordinating Board and the State Board for Community and Technical Colleges on the supply and demand for workforce education and certificates and associate degrees.

- How many FTE student spaces must be available in educational programs less than a bachelor's degree but greater than one year to meet employer demand for prepared workers at this level?

  Estimates will be incorporated in measures described above.

Analytical Approach

Analysis will occur in four parts:

1. First, aggregate estimates of the supply and demand of education will be provided. Based on expected student enrollments, the number of graduates will be compared to the number of degrees needed to meet employer demand. Finally, projected enrollments will be compared to planned capacity for the system.

2. The nature of baccalaureate and graduate study often does not allow for one-to-one comparisons between major lines of study and occupations. Rather than produce tables that create a false sense of precision, the analysis of major lines of study and occupations will consist of a matrix that shows the distribution of graduates from given majors in occupational groups. The matrix will be based on data from the "Baccalaureate and Beyond" study; however, with additional data gathering, future reports will use data from Washington graduates.

3. High-demand fields will be identified. Occupational areas that face the greatest challenges in attracting qualified workers will be considered for inclusion as high-demand occupations. These occupations will be identified as those with significant gaps in the supply of workers and the demand for workers with a given level of training.

4. Regional profiles will provide detailed information on postsecondary participation and rapidly growing occupational areas, by region, of the state.